

# APPENDIX

TO

## THE ZOOLOGIST

FOR 1850.

ART. I.—*Characters of undescribed Diptera in the British Museum.*

By FRANCIS WALKER, Esq., F.L.S.

TABANUS PYRAUSTA, fem.

*Ferrugineus, abdomine nigro, segmentorum marginibus posticis fulvis, palpis antennis pedibusque nigris, alis fulvis.*

Head ferruginous, tawny and clothed with dark tawny hairs beneath: eyes bronzed, parted above by a very narrow interval; the facets small, but much increasing in size towards the inner fore border: sucker black, clothed with black hairs; lancets dark ferruginous; palpi black, covered with black down: feelers black; third joint slightly convex beneath, armed above with a short stout horn, which forms an acute angle and tapers gradually from the base to the tip; compound joint slightly curved upward, much shorter than the third joint: chest and breast adorned with a bright ferruginous covering, the latter rather paler than the former and clothed with tawny hairs: abdomen black, obconical, clothed with short black hairs, much longer and a little broader than the chest; hind borders of the segments bright tawny: legs black, clothed with short black hairs; foot-cushions tawny: wings bright tawny; wing-ribs and veins ferruginous; curve of the tip cross-vein slight, not angular; scales tawny; poisers red. Length of the body 11 lines; of the wings 22 lines.

Java.

TABANUS TENENS, fem.

*Cinereus, thoracis lateribus abdomineque ferrugineis, hujus vitta cinerea, antennis pedibusque ferrugineis, femoribus cinereis, tarsis piceis, tarsis anticis nigris, alis cinereis basi costa nervorumque marginibus flavo-fuscis.*

Body gray: head adorned above with a tawny covering, which is interrupted by a club-shaped pitchy mark, paler and clothed with yellow hairs beneath: eyes bronzed, parted above by a moderate interval; the facets very small, but slightly increasing in

size towards the inner fore border: sucker black; lancets ferruginous; palpi tawny, thickly clothed with very short black hairs: feelers ferruginous; first and second joints tipped with black; third joint angular beneath, armed above with a very broad, rather short horn, whose angle is acute; compound joint hardly curved upward, about half the length of the third joint: sides of the chest ferruginous: breast clothed with pale yellow hairs: abdomen ferruginous, obconical, paler beneath, thinly clothed with short black hairs; a slight gray stripe along the back: legs ferruginous; hips and thighs tinged with gray, clothed with tawny hairs; shanks and feet clothed with very short black hairs; feet pitchy; claws and fore feet black: wings gray, clouded with yellowish brown at the base, beneath the fore border and along the veins; brands brown; wing-ribs ferruginous; veins black, ferruginous at the base; curve of the tip cross-vein inclining to an obtuse angle; scales gray, with tawny borders; poisers ferruginous, with yellow knobs. Length of the body 11 lines; of the wings 22 lines.

Parà.

TABANUS ALBO-ATER, fem.

*Niger, albo-hirtus, capite albo, thoracis lateribus ferrugineis, pectore cano, abdomine fasciculis albis trivittato, antennis pedibusque nigris, alis cinereis.*

Body black: head white, thickly clothed beneath with white hairs; a black ridge along the crown: eyes brassy, parted above by an unusually narrow interval; facets very small, increasing in size towards the inner fore border: sucker black; lancets ferruginous; palpi tawny, clothed with very short black hairs: feelers black; first joint clothed with short black hairs; third joint slightly convex beneath, armed above with a short stout horn, whose angle is acute; compound joint slightly curved upward, much shorter than the third joint: chest tinged with gray, dark ferruginous on each side; breast hoary, clothed with white hairs: abdomen obconical, longer than the chest, adorned above with tufts of white hairs, which form three rows of spots; the side spots are on the fore borders, the middle spots on the hind borders of the segments; under-side gray, clothed with black hairs; hind borders of the segments white, clothed with white hairs; claws ferruginous, with black tips; foot-cushions tawny: wings gray; brands yellowish brown; wing-ribs pitchy; veins black, pitchy at the base and beneath the fore border; curve of the tip cross-vein inclining to a very obtuse angle; scales gray, with pitchy borders; poisers tawny. Length of the body 9 lines; of the wings 18 lines.

Parà.

TABANUS VIRIDI-FLAVUS, fem.

*Viridi-flavus, abdominis apice fulvo, antennis fulvis basi flavis, pedibus viridi-flavis, alis albidis.*

Body whitish yellow, tinged with bright pale green, thick and convex like *T. maculatus* and *T. ochroleucus*: head clothed beneath with pale yellow hairs: eyes red, parted by a narrow interval on the crown; the facets larger than usual, especially towards the inner fore border: sucker tawny, ferruginous towards the tip; lancets bright emerald green; palpi yellow, clothed with short pale hairs: feelers tawny; first and second joints yellow; third joint very convex beneath, its angle above shal-

low and indistinct, having the hind side convex, the fore side slightly concave; compound joint green, tapering, slightly curved upward, remarkably small, while the third joint is proportionably large, the latter being more than four times the length, six times the breadth near the base, and thrice the breadth near the tip, of the former: chest and breast clothed with pale yellow hairs: abdomen obconical, tawny towards the tip, longer than the chest: legs yellow, clothed with short pale hairs, tinged with green; claws black; tips of the fore feet tawny: wings whitish; wing-ribs and veins green; cross-veins darker; angle of the tip cross-vein obtuse, distinct; scales whitish, with pale yellow borders; poisers green. Length of the body 6 lines; of the wings 13 lines.

Brazil.

TABANUS FULLO, *fem.*

*Canus, capite subtus albo, abdominis segmentorum marginibus posticis ferrugineis, palpis antennis basi pedibusque fulvis, femoribus canis, tarsis piceis, alis albidis.*

Body hoary, thickly clothed with short pale yellow hairs: head white beneath; a pitchy forked mark on the crown: eyes bronze-black, clothed with short pale yellow hairs, parted above by a rather broad interval; all the facets very small: sucker black; lancets pale ferruginous; palpi tawny, rather long and slender, three-fourths of the length of the sucker: first and second joints of the feelers tawny, beset with short black bristles: abdomen obconical, very much longer than the chest, slightly tinged with tawny; hind borders of the segments pale ferruginous: legs tawny, clothed with pale yellow hairs; a hoary tinge on the hips and the thighs; feet ferruginous, with pitchy tips; claws black: wings whitish; wing-ribs and veins tawny, the latter black towards the tips; angle of the tip cross-vein obtuse, very distinct, its stump rather longer than its inner side; scales whitish, with pale yellow borders; poisers yellow, their knobs pitchy towards the base. Length of the body  $6\frac{1}{2}$  lines; of the wings 14 lines.

TABANUS FENESTRATUS, *fem.*

*Rufus, abdominis apice piceo, palpis antennis basi pedibusque ferrugineis, tarsis piceis, alis limpidis dimidio basali nigro-fuscis bifenestratis.*

Body red: head clothed beneath with pale yellow hairs: eyes black, parted above by a broad interval; facets very small: sucker black; lancets and palpi ferruginous: first and second joints of the feelers ferruginous: breast clothed with pale yellow hairs: abdomen obconical, pitchy towards the tip, longer than the chest: legs dark ferruginous, clothed with short black hairs; feet pitchy; claws ferruginous towards the base; foot-cushions tawny: fore shanks broad, spindle-shaped, like those of *T. latipes* of Macquart: wings colourless, dark brown for full half the length from the base, with the exception of two colourless spots, one near the base very small, the other larger; wing-ribs pitchy; veins black; curve of the tip cross-vein slight, a little inclining to the angular form; borders of the scales pitchy; poisers tawny. Length of the body 6 lines; of the wings 14 lines.

TABANUS VAGUS, fem.

*Fulvus, thorace trivittato, abdomine antennisque ferrugineis, pedibus fulvis, tarsis ferrugineis, alis fuscis apice margineque postico cinereis.*

An aberrant species. Head dull tawny on the crown, bright tawny in front, whitish yellow and clothed with pale yellow hairs beneath: a shining ferruginous ridge on the crown, wider in front: eyes coppery, parted above by a narrow interval; the facets as usual: sucker pitchy; lancets pale ferruginous; palpi tawny, clothed with very short black hairs: feelers pale ferruginous; third joint slightly angular beneath, armed above with a very small and short acute horn, whose tip is beset with little black bristles: chest dark tawny, with three rather indistinct stripes: breast tawny, clothed with pale yellow hairs: abdomen ferruginous, obconical, paler beneath, near twice the length of the chest: legs tawny, clothed with very short black hairs; hips and thighs clothed with pale yellow hairs; feet ferruginous, black towards the tips; foot-cushions tawny: wings brown, inclining to gray at the tips and along the hind borders; wing-ribs ferruginous; veins pitchy, ferruginous at the base; angle of the tip cross-vein very distinct, slightly obtuse, its stump much shorter than the inner side; scales ferruginous; poisers tawny, with yellow knobs. Length of the body 6 lines; of the wings 13 lines.

Hong-Kong.

TABANUS BASI-VITTA, fem.

*Fuscus, pectore cinereo, abdomine ferrugineo basi nigro vittato, antennis ferrugineis basi fulvis, pedibus ferrugineis, tarsis nigris, alis cinereis basi costaque fuscis.*

Covering of the head dark tawny above, paler in front and beneath, where it is clothed with short black hairs; a pitchy ridge along the crown; eyes bronzed, parted above by a moderate interval; facets as usual: sucker black; lancets ferruginous; palpi tawny, rather long, thickly clothed above with short black hairs: feelers ferruginous; first and second joints dark tawny; third joint slightly convex beneath, armed above with a moderately long and very acute horn; compound joint tapering, curved upward, rather more than half the length of the third joint: chest brown, clothed with short ferruginous hairs: breast gray, clothed with short black hairs: abdomen ferruginous, obconical, darker towards the tip, nearly twice the length of the chest, clothed with very short black hairs, adorned above at the base with a very short black stripe: legs very dark ferruginous, clothed with short black hairs; feet black; foot-cushions tawny: wings gray, tinged with brown at the base and along the fore border; brands dark brown; wing-ribs pitchy; veins black, pitchy at the base and beneath the fore border; scales gray, with pitchy borders; poisers ferruginous, with yellow knobs. Length of the body  $7\frac{1}{2}$  lines; of the wings 14 lines.

Parà.

TABANUS VIDUUS, fem.

*Cinereus, abdomine ferrugineo apice nigro, palpis antennisque nigris horum articulo 3<sup>o</sup> piceo, pedibus piceis, femoribus nigris, alis cinereis basi et ad costam fuscis.*

Body gray: head dark grayish tawny above, hoary and clothed with short hoary hairs beneath; a fringe of very short black bristles behind the eyes; a pitchy narrow

ridge on the crown: eyes bronzed, parted above by a moderate interval; facets as usual: sucker, lancets and palpi black; palpi tinged with dark tawny, clothed with very short black hairs: feelers black; first and second joints beset with very short black bristles; third joint pitchy, slightly convex beneath, armed above with a rather long acute horn; compound joint tapering, curved upward, more than half the length of the third joint: breast clothed with pale tawny hairs: abdomen obconical, very dark ferruginous, paler beneath, black towards the tip, clothed with short black hairs, much longer than the chest: legs pitchy, clothed with very short black hairs; hips and thighs black, tinged with gray, clothed with pale tawny hairs; claws and tips of feet black; foot-cushions tawny: wings gray, tinged with brown at the base, beneath the fore border and about the brand, which is dark brown; wing-ribs and veins black; veins pitchy along the fore border; curve of tip cross-vein inclining to an obtuse angle; scales gray, with pitchy borders; poisers pitchy. Length of the body  $8\frac{1}{2}$  lines; of the wings 16 lines.

Parà.

TABANUS DESERTUS, fem.

*Cinereus, thoracis lateribus fulvis, pectore cano, abdomine fusco maculis trigonis fulvis trivittato lateribus ferrugineis ventre fulvo, pedibus fulvis, alis cinereis.*

Body gray: head dark above, white and clothed with white hairs beneath; a pitchy shining convex mark in front of the crown: eyes bronze-black, parted above by a rather broad interval; facets as usual: sucker black; palpi white, clothed with short black hairs; feelers ferruginous; first and second joints clothed with short black hairs; third joint convex beneath, armed above with a very short and obtuse horn; compound joint tapering, black, curved upward, much shorter than the third joint: sides of the chest dark tawny: breast hoary, clothed with white hairs: abdomen dark brown, much longer than the chest, linear till near the tip, which is rounded, thinly clothed with short pale yellow hairs, which are chiefly on the hind borders of the segments, tawny beneath, somewhat ferruginous on each side above and adorned with three rows of triangular tawny spots; middle spots paler than the side spots, which are oblique: legs tawny, clothed with very short black hairs; hips and thighs clothed with hoary hairs: claws and tips of feet black: wings gray; brands brown; wing-ribs pitchy; veins black, pitchy at the base and along the fore border; curve of the tip cross-vein slightly inclining to an obtuse angle; scales gray, with pitchy borders; poisers tawny. Length of the body 5 lines; of the wings 10 lines.

Parà.

TABANUS ADVENA, fem.

*Niger, capite ferrugineo, thoracis lateribus abdomineque fulvis, hujus apice piceo, antennis ferrugineis, pedibus fulvis, tarsis anticis nigris, alis albidis.*

Body black: head ferruginous, golden yellow above the feelers, thinly clothed beneath with pale yellow hairs: eyes red, parted by a moderately broad interval; the facets as usual: sucker pitchy; lancets ferruginous; palpi very pale yellow: feelers bright pale ferruginous; third joint slightly convex beneath, its upper side forming an extremely shallow and obtuse angle; compound joint tapering, curved upward, shorter than the third joint: chest and breast thinly clothed with pale yellow hairs;

sides tawny: abdomen tawny, slightly obconical, pitchy towards the tip, very much longer than the chest, clothed with short pale yellow hairs: legs tawny, clothed with very short pale hairs; feet ferruginous towards the tips; claws and fore feet black: wings whitish; wing-ribs and veins tawny; veins black towards the tip; angle of the tip cross-vein distinct, slightly obtuse, its stump as long as its shorter side; scales whitish yellow, with pale yellow borders; poisers pale yellow. Length of the body  $4\frac{1}{2}$  lines; of the wings 8 lines.

TABANUS SARPA, White, MSS., fem.

*Fuscus, thoracis vittis quatuor pectoreque canis, abdomine piceo, ventre cano segmentorum marginibus posticis fulvis, pedibus fulvis, femoribus cinereis, tarsis nigris, alis subcinereis.*

Head gray above, white and thickly clothed with long white hairs beneath; an obclavate black shining mark on the crown: eyes bronzed, parted above by a moderate interval: sucker pitchy, much longer than the head; lancets ferruginous; palpi tawny, clothed with very short black hairs: feelers black; first and second joints dark tawny, clothed with short black bristles; third joint indistinctly angular beneath, armed above with a short, very stout horn, which forms a slightly obtuse angle, whose hind side is slightly convex, its fore side is very short, and forms a very obtuse angle with the continuation of the third joint to the tip; compound joint very slightly curved upward, shorter than the third joint: chest dark brown, adorned with four hoary stripes, a pair on each side connected by an oblique band: breast hoary, clothed with white hairs: abdomen pitchy, slightly obconical, clothed with hoary and black hairs, very much longer than the chest; under-side hoary; hind borders of the segments tawny on each side and beneath: legs tawny, clothed with white hairs; hips and thighs gray; shanks and feet clothed with very short black hairs; feet black; foot-cushions tawny: wings pale gray; brands dark brown; wing-ribs pitchy; veins black, pitchy at the base and along the fore border; tip cross-vein nearly straight, its usual curve being very indistinct; scales gray, with pitchy borders; poisers pitchy. Connects Tabanus with Pangonia. Length of the body 6 lines; of the wings 12 lines.

New Zealand.

TABANUS OPLUS, White, MSS., mas.

*Fuscus, pectore cano abdomine ferrugineo vitta interrupta nigra ornato, antennis pedibusque fulvis, tarsis fuscis, alis subcinereis.*

Head tawny in front, pale yellow and clothed with white hairs beneath: eyes bronzed, meeting on the crown; facets small on each side, large above, but not forming two distinct regions: sucker black; lancets tawny; palpi yellow, clothed with black hairs: feelers dark tawny; first and second joints clothed with black bristles; third joint convex beneath, armed above with a very short horn, which forms a right angle; compound joint straight, tapering, longer than the third joint: chest and breast thickly clothed with tawny hairs; chest brown; breast hoary: abdomen ferruginous, obconical, a little shorter and broader than the chest, clothed with tawny hairs and at the tip with a few black hairs, adorned above with a broad black stripe,

which is interrupted on the hind border of each segment : legs tawny ; hips and thighs clothed with pale yellow hairs ; shanks and feet beset with very short black hairs ; feet brown above ; claws black, tawny at the base ; foot-cushions pale tawny : wings pale gray ; wing-ribs tawny ; veins pitchy, tawny at the base and along the fore border ; curve of the tip cross-vein inclining to an obtuse angle ; in one wing of the specimen described the angle is more distinct than in the other, and is accompanied by a short stump ; poisers tawny, with pitchy knobs. Length of the body 4 lines ; of the wings 9 lines.

New Zealand.

TABANUS IMPAR, mas. et fem. ?

Mas.—*Niger, thoracis lateribus ferrugineis, abdomine ferrugineo vitta brevi dorsali fasciisque nigris fasciis flavis et maculis trigonis fulvis ornato, antennis nigris basi fulvis, femoribus nigris, tibiis fulvis, tarsis piceis, alis cinereis.* Fem. ? —*Fuscus, thoracis lateribus vittisque tribus fulvis, pectore cano, abdomine fulvo apice piceo, pedibus fulvis.*

Mas.—Head black, clothed beneath with pale yellow hairs : eyes black ; facets small, but slightly increasing in size towards the crown : sucker black ; lancets yellow ; palpi pale tawny, clothed with very short black hairs : feelers black ; first and second joints very dark tawny, thickly clothed with black hairs, their angles unusually prominent ; third joint slightly convex beneath, armed above with a stout and moderately long horn, which forms an acute angle ; compound joint tapering, hardly curved upward, a little shorter than the third joint : chest and breast black, clothed with pale tawny hairs ; sides pale ferruginous, beset with a few black hairs : abdomen ferruginous, obconical, hardly longer than the chest, clothed with pale tawny hairs ; second segment adorned above with a black middle stripe ; fore borders of the third and following segments black, each adorned with a tawny triangular middle spot, which rests on a narrow pale yellow band extending along the hind border : hips and thighs black, clothed with tawny hairs ; tips of the thighs tawny ; shanks tawny, clothed with very short hairs ; hind shanks ferruginous, clothed with long tawny hairs ; feet pitchy, clothed beneath with ferruginous down ; claws black ; foot-cushions tawny : wings gray ; wing-ribs pitchy ; veins black, pitchy at the base and along the fore border ; brands dark brown ; curve of the tip cross-vein extremely slight ; scales gray, with pitchy borders ; poisers tawny, with pitchy knobs. Fem. ?—Head tawny above, whitish beneath : eyes bronzed, parted above by a rather broad interval ; facets very small ; third joint of the feelers forming a very obtuse angle beneath, its horn shorter than that of the male ; compound joint slightly curved upward, a little longer than the third joint : chest tawny, its disk brown, adorned with three tawny stripes ; breast hoary, clothed with pale yellow hairs : abdomen dull tawny, obconical, pitchy towards the tip, clothed with pale yellow hairs, which are chiefly on the hind borders of the segments, about twice the length of the chest : legs tawny, clothed with short black hairs ; hips and thighs clothed with pale yellow hairs ; feet pitchy towards the tips ; foot-cushions tawny ; claws black, tawny at the base. Length of the body  $5\frac{1}{2}$ —6 lines ; of the wings 13—14 lines.

New Zealand.

## TABANUS TRUNCATUS, fem.

*Fuscus, vittis tribus cinereis, lateribus pectoreque canis, abdomine cinereo fasciis sub-interruptis fuscis ornato, antennis nigris basi piceis, pedibus fulvis, femoribus tarsisque anticis nigris, alis cinereis basi et ad costam subfulvis.*

Head gray above, hoary and clothed with black and white hairs beneath: eyes bronzed, parted above by a very broad interval; all the facets very small: sucker black; lancets pale ferruginous; palpi tawny, with a hoary tinge, clothed with short black hairs: feelers black, adorned with a hoary tinge; first and second joints pitchy, clothed with short black hairs; third joint slightly convex beneath, rather more convex and indistinctly angular above; compound joint slightly tapering, almost straight, shorter than the third joint, its divisions not very compact: chest dark brown, adorned with three indistinct gray stripes; sides and breast hoary: abdomen gray, obconical, a little longer and broader than the chest; fore border of each segment adorned with a dark brown band, which is almost interrupted in the middle: legs tawny, clothed with short tawny hairs; feet towards the tips, claws, fore thighs and fore feet black; foot-cushions tawny: wings gray, with a slight tawny tinge at the base and along the fore border; brands pale brown; wing-ribs pitchy; veins black, pitchy at the base and along the fore border; curve of the tip cross-vein inclining to an obtuse angle; scales gray, with pitchy borders; poisers pitchy. Length of the body  $3\frac{1}{2}$  lines; of the wings 10 lines. An aberrant species.

New Zealand.

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